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**PLANNING DOCUMENTS
PHASE IV - FINAL INVESTIGATION FOR THE REMEDIAL INVESTIGATION
ADDENDUM NO. 3
WORK PLAN AND FIELD SAMPLING PLAN**

**REMEDIAL INVESTIGATION/
FEASIBILITY STUDY**

**BELOIT CORPORATION
BLACKHAWK FACILITY
ROCKTON, ILLINOIS**

September 1997

**Prepared For:
Beloit Corporation
Rockton, Illinois**

...

**Prepared By:
Montgomery Watson
Madison, Wisconsin**

Project No. 1242077.08090160



MONTGOMERY WATSON



MONTGOMERY WATSON

September 22, 1997

Mr. Eric Runkel
Illinois Environmental Protection Agency
2200 Churchill Road
Springfield, Illinois 62794

Re: Phase IV - Final Phase Work Plan
Beloit Corporation - Blackhawk Facility
Rockton, Illinois

Dear Mr. Runkel:

On behalf of Beloit Corporation, Montgomery Watson is submitting three copies of the Work Plan for the Phase IV-Final Phase Remedial Investigation (work plan), as requested by the Illinois environmental Protection Agency (IEPA). This is the work plan addresses agreements made with IEPA during June 1997 meetings, subsequent negotiations and E&E comments dated September 4, 1997.

We look forward to receiving IEPA's approval of this work plan so we can initiate field work in late October. If you have any questions or comments regarding the enclosed work plan, please call.

Sincerely,

MONTGOMERY WATSON

Kenneth J. Quinn, P.G.
Principal Hydrogeologist

Enclosures: Phase IV Investigation Work Plan

cc: Mr. Kevin J. Domack - Harnischfeger Industries, Inc. (1 copy)
Mr. Frederick Mueller - Johnson and Bell (2 copies)
Mr. Doug McLeish - Beloit Corporation (1 copy)
Mr. Terry Ayres - IEPA (1 copy)
Mr. Paul Jagiello - IEPA (1 copy)
Ms. Susan Horn - IAG (1 copy)
Mr. Kevin Phillips - Ecology and Environment (3 copies)
Ms. Mary Tierney - U.S. EPA (1 copy)
Ms. Eileen Furey - U.S. EPA (1 copy)

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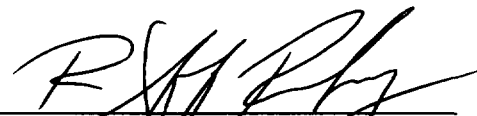
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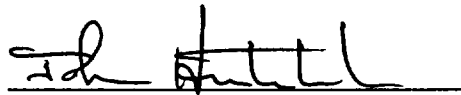
**BELOIT CORPORATION
BLACKHAWK FACILITY
ROCKTON, ILLINOIS**

September 1997

Prepared by:



R. Jeff Ramsby, P.G.
Project Hydrogeologist

9-22-97
Date


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9-22-97
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1.0 INTRODUCTION

This Phase IV - Final Phase of Investigation (Phase IV) for the Remedial Investigation (RI), as with Phases I, II, and III, is being conducted under the Additional Work provision of the Consent Decree to satisfy requirements of the Remedial Investigation/Feasibility Study (RI/FS). This Addendum 3 to the Beloit Corporation Blackhawk Facility (site) Remedial Investigation and Feasibility Study (RI/FS) Work Plan (work plan) provides modifications and additions to the planning documents as amended by Addendums 1 and 2. These modifications and additions describe Phase IV at the site, that will result in completion of the RI and support of the FS.

The objective of Phase IV activities is to collect data to:

- Evaluate the potential source of a deep VOC plume in the vicinity of the former Soterion facility located in the southern portion of the Blackhawk Acres Subdivision. If a source to the deep VOC concentrations is found a migration pathway assessment will be performed. This data will be used with previously collected data for the development and evaluation of final remedial alternatives. Previous investigations (Phases I, II and III) have provided characterization and the nature of a source of VOCs located on Beloit Corporation Property and the extent of VOCs in the groundwater.
- If Soterion is not shown to be a source, one more water quality boring will be installed on the Beloit Corporation property to refine the interpretation of the geology and groundwater quality on the property.
- Determine the effectiveness of the Interim Source Control Action (ISCA) to affect groundwater levels in the vicinity of the southern area of Watts Ave. This will be evaluated through a detailed water level monitoring program.
- Determine if VOCs are present at the water table upgradient of the water supply well located at 1102 Blackhawk Blvd.

1.1 BACKGROUND

The RI is proceeding in a phased approach, in accordance with U.S. EPA Guidance. The Phase I investigation provided preliminary characterization of the site hydrogeology and groundwater quality. In addition, several potential source areas were evaluated. Results from the Phase I investigation identified four potential points of release: in the vicinity of the Beloit Corporation Plant (BCP), the Storage Yard Area (SYA) of the Beloit Corporation property, the Foundry Sand Disposal Area (FSDA), and the Fiber Sludge Spreading Area (FSSA). The Phase II investigation eliminated all the potential VOC source areas, on Beloit Corporation Property, except the BCP in the vicinity of well W23. In addition, sampling in

the FSDA was performed to further characterize the extent of contamination in this area and surficial contamination was evaluated in the FSSA, FSDA and SYA.

The Phase III investigation activities evaluated and eliminated potential migration pathways and delineated the extent of VOCs in groundwater to the south of Beloit Corporation property. In addition, sampling activities were conducted to complete collection of information for the Ecological Assessment to finalize the Baseline Risk Assessment.

The Phase IV investigation data collection activities are to be performed as part of Task 2, Site Investigation as presented in the Work Plan (Vol. 1, Planning Documents) for the Beloit Corporation Blackhawk Facility, dated June 1992. The Phase IV activities will be conducted in accordance with this work plan which refers to the IEPA approved planning documents previously prepared for this RI/FS, where appropriate.

1.2 WORK SCOPE

The Phase IV work scope is intended to complete characterization of the extent of VOCs in groundwater in order to develop and evaluate final remedial alternatives. In addition, groundwater level monitoring will be conducted to evaluate the effectiveness of ISCA in the southern portion of the Blackhawk Acres Subdivision.

Phase IV activities are based on data presented in Tech Memos 1 through 3, analytical results, and water table maps which have been prepared from water levels collected on a regular basis.

The Phase IV investigation will include the following activities:

1.2.1 VOC Source Evaluation

The following Phase IV activities will be performed in the vicinity of the former Soterion facility to evaluate the potential of a VOC source:

- Conduct a survey of what may be the private well located at Soterion facility on the north side of the northern-most quonset hut.
- Collect and field screen a sample from the private well located at Soterion facility, if possible.
- Conduct soil borings with groundwater samples collected at the water table to evaluate the facility as a source of VOCs;
- Installation and surveying of three temporary piezometers to determine the direction of groundwater flow in the vicinity of the Soterion facility;

- Installation of two permanent monitoring wells in the completed soil borings to document the presence of a source, if found; and
- Completion of one deep water quality boring and a subsequent permanent well installation to either evaluate the migration pathway away from a shallow source, if found, or to evaluate the potential of release of VOCs through an on site private well.

If no source of VOCs is found on the Soterion facility that explains the deep VOC plume identified at well W26C, one water quality boring will be placed on the Beloit Corporation property to evaluate if Beloit Corporation could have contributed to the deep VOC plume.

1.2.2 1102 Blackhawk Blvd.

One soil boring will be conducted in the upgradient position of the private water supply well located at 1102 Blackhawk Blvd. The soil boring will be completed to approximately 2 ft below the water table and a groundwater sample will be collected and analyzed for TCL VOCs.

1.2.3 ISCA Evaluation

Water levels will be monitored in several wells located in the vicinity of the southern portion of Blackhawk Acres subdivision while the pumping rate at EW04 is varied to evaluate the effect the ISCA is having in that area.

1.2.4 Groundwater Flow Evaluation

To further evaluate the direction of groundwater flow south of the Beloit Corporation property, two staff gauges will be installed. The staff gauges will be installed in the following locations:

- One staff gauge will be installed in the Rock River downstream from the hydroelectric plant dam where the railroad crosses the river; and
- One staff gauge will be installed in the hydroelectric raceway where West Rockton Rd. (Union St.) crosses the raceway.

1.3 ADDENDUM FORMAT

Revisions to the original planning documents are presented in Sections 2 and 3. These sections are as follows:

- Section 2 - Addendum to the Work Plan
- Section 3 - Addendum to the Field Sampling Plan
- Section 4 - Addendum to the Quality Assurance Project Plan

No addendum to the Health and Safety Plan is necessary for this scope of work.

2.0 ADDENDUM TO THE WORK PLAN

The following text additions are hereby incorporated into the RI/FS Work Plan (Volume 1) of the planning documents for the Beloit Corporation Blackhawk Facility RI/FS.

The following subsections describe the investigative activities to evaluate the potential for a VOC source in the vicinity of the former Soterion facility, profile the geology and groundwater chemistry in the central portion of the Beloit Corporation property where IEPA believes a data gap exists, if necessary, evaluate the effectiveness of the ISCA in the southern portion of the Blackhawk Acres Subdivision, and refine groundwater flow directions south of the Beloit Corporation property,. Proposed boring locations have been chosen based on data gathered during Phases I through III of the RI and are shown on Drawing B1.

2.1 DEEP VOC PLUME SOURCE INVESTIGATION

Up to nine soil borings are proposed in the vicinity of the former Soterion facility (see Drawing B1) to evaluate the property as a source of VOCs to the groundwater. Water quality samples will be collected at the water table in these borings and screened for VOCs using a field GC (see target VOC list in Final QAPP, Appendix C3). Temporary wells will be installed at three of these borings. These locations are tentatively selected as 1) directly north of the northern-most quonset hut (SB41), 2) directly west of the northern-most quonset hut (SB40), and 3) directly south of the northern-most quonset hut (SB43). The Sampling Plan Addendum includes well installation guidelines for the temporary piezometers.

Following completion of the soil boring program, one water quality boring is proposed to be drilled to the top of the clay with water quality samples collected on 10 ft intervals. If a source is found through the soil boring and water screening program, the water quality boring will be conducted in the most probable migration pathway. If water level measurements from the temporary piezometers indicate groundwater at the water table is flowing toward the north (indicating the window in the silty sand is allowing vertical migration) the boring will be conducted in the area believed to be downgradient in the lower groundwater zone from the area where the source is migrating vertically. If no source is detected, the water quality boring will be conducted at the location indicated on Drawing B1, or downgradient from an on site private well. Hydraulic conductivity test will be conducted at each well installed.

If a source is detected there will be two permanent wells installed. One well will be installed in the boring where the source was detected and one in the water quality boring installed in the probable migration pathway. If the source area boring has a temporary piezometer installed, the boring will be redrilled and the permanent well will be installed.

If a source is not detected, there will be one permanent well installed in the water quality boring located downgradient of the private well. Hydraulic conductivity tests will be conducted at each well installed.

If completed, the permanent monitoring well(s) will be installed using previously approved installation rationale and methods (see Sampling Plan).

2.2 CENTRAL BELOIT CORPORATION PROPERTY INVESTIGATION

If a source of the deep VOC plume is not found at the former Soterion facility, one groundwater quality boring will be conducted on Beloit Corporation property at the location shown on Drawing B1. This investigative activity is intended to refine the interpretation of the geology and groundwater quality to determine if there are geological features in this area which would allow VOCs to migrate vertically which would account for the detected deep VOC plume.

If completed, a permanent monitoring well will be installed in the groundwater quality boring using previously approved installation rationale and methods (see Sampling Plan). A hydraulic conductivity test will also be conducted at this well.

2.3 1102 BLACKHAWK BLVD.

The soil boring at 1102 Blackhawk Blvd. is intended to determine if VOCs are present in the groundwater upgradient of the private well located at 1102 Blackhawk Blvd. This task will be accomplished by completing one soil boring near the intersection of Blackhawk Blvd. and Cannell Ct. and collecting a groundwater sample from within the augers. The groundwater sample will be analyzed for TCL VOCs.

2.4 ISCA EVALUATION

Evaluation of the ISCA is intended to determine if the ISCA is having an effect on groundwater levels in the southern portion of Blackhawk Acres Subdivision. This task will be accomplished by varying the pumping rate at well EW04 while recording groundwater levels in wells W18, W37, W44C, and the new piezometer installed at the former Soterion facility.

Extraction well EW04 is currently pumping at approximately 130 gpm. After allowing data to be recorded for 1 week following installation of the data recorders, extraction well EW04 will be turned off. Water levels will be allowed to recover for a period of one week to achieve or approach static conditions. After the one week shutdown, extraction well EW04 will be restarted at a pumping rate of approximately 130 gpm. Water levels will continue to be monitored for a period of two weeks following restarting EW04. Water levels in wells EW04, W26, and W26C will be measured weekly during the four week test period.

Well W37 will be used as a background well to assist in evaluating natural groundwater fluctuations. Well W37 was chosen to be a background well based on its location relative to the area being studied. Historical groundwater fluctuations and gradients are fairly consistent between the W37 location and the area being studied and therefore, should provide an adequate representation of natural groundwater fluctuations for the duration of the study. Wells W29 and W29C were not chosen to be background wells based on the possibility that these wells may be affected by the ISCA.

Data logger records from each well (W18, W37, W44C, and the new well) will be compared to the data collected from W37 to determine if there was a response to the variations in pumping rates in the vicinity of the southern portion of Blackhawk Acres Subdivision. The difference between natural groundwater fluctuations at W37 and water levels at wells W18, W44C and the new piezometer at Soterion will be presented graphically, which will indicate the effect the ISCA is having in the southern portion of Blackhawk Acres subdivision.

2.5 STAFF GAUGE INSTALLATIONS

Two new staff gauges are proposed in the Rock River. The staff gauges are intended to supplement current monitoring points and provide additional data concerning the direction of groundwater flow to the south of Beloit Corporation property. The staff gauges will be surveyed points on the bridges where the railroad and West Rockton Rd. (Union Street) cross the Rock River and hydroelectric plant raceway, respectively. From these surveyed points a depth to water can be measured. The staff gauges are proposed in this manner to prevent vandalism and physical constraints.

2.6 GROUNDWATER QUALITY ASSESSMENT

Groundwater quality sampling and analysis will be conducted on all the new wells and well W27 during the first quarterly sampling event conducted in association with the ISCA, following completion of proposed well installations. The parameters to be analyzed and the intended data uses for this selection are listed in Table 1-3 of the QAPP Addendum (Section 4).

The Phase I Field Sampling Plan presents detailed information regarding groundwater monitoring well sampling procedures and equipment. The groundwater samples will be analyzed for the parameters listed in Table 1-1 of the QAPP Addendum (Section 4). Target compounds and QA objectives for the analyses are described in the approved QAPP.

2.7 INVESTIGATIVE DERIVED WASTES

Water produced during drilling will be stored on-site in dated, labeled 55-gallon drums, pending analytical results. Only wastes from a single boring/well will be in any single drum (i.e., wastes will not be mixed). A running tally of the number of drums used for

each location, and total drums of waste will be documented and reconciled. Soil cuttings at off-site locations will be contained and returned to Beloit Corporation property and disposed as described in the Phase I Work Plan.

2.8 LOCATION AND ELEVATION SURVEY

2.8.1 Location Survey

A location survey of all new monitoring wells, soil borings, and staff gauges will be performed to provide horizontal ground control. Horizontal locations will be surveyed to the nearest 1 ft and tied to the Illinois State Plane Coordinate Grid System.

2.8.2 Elevation Survey

An elevation survey of all new monitoring wells and soil borings will be performed during the horizontal survey. Elevations of ground surface will be surveyed to the nearest 0.1 ft, top of protective casing and top of well casing will be surveyed to the nearest 0.01 ft. Existing staff gauge have been surveyed to the nearest 0.01 ft after being re-set in 1997. New staff gauges measuring locations will be surveyed to the nearest 0.01 ft. Elevations will be relative to the National Geodetic Vertical Datum of 1929.

The top of well casing at the temporary piezometers will be surveyed to the nearest 0.01 ft. And referenced to a site specific datum.

2.9 WATER LEVELS

One complete round of water levels will be collected following completion of the installation and survey of new wells and staff gauges and prior to initiation of the ISCA evaluation. Water levels will be collected from the temporary piezometers after the measurements indicate the piezometers have come to equilibrium.

2.10 PRIVATE WELL ASSESSMENT

A survey will be conducted to determine the location of private wells located within the Village of Rockton. The Village clerk will be contacted to obtain records of the well locations known within the village. The Illinois State Water Survey will be contacted to obtain well logs for all municipal, industrial and private wells within the village which have not previously been obtained (Section 24, T46N, R1E; Sections 12 and 13 have already been obtained and are included in Tech Memo 1). Additionally, the Winnebago County Public Health Department and Village of Rockton will be contacted to obtain the regulations and ordinances governing water supply wells. This data will be used to indicate the status of existing wells and identify areas where additional private wells may and may not be installed, according to the regulations.

2.11 REPORTING

Following completion of the investigation and receipt of all analytical results a Tech Memo will be prepared to present the data collected during the investigation. A summary of work performed and forms, tables, and drawings describing the methods and data analyses from the Phase IV investigation will be included in the Tech Memo.

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3.0 ADDENDUM TO THE FIELD SAMPLING PLAN

3.1 PHASE IV INVESTIGATION

The source investigation at the Soterion facility will consist of collecting groundwater quality samples and using a field GC to screen these samples. Proposed soil borings will be drilled using hollow stem augers. The method is described in the Phase I FSP. Proposed soil borings will be advanced to approximately two feet below the water table. A groundwater sample will be collected from inside the augers using a stainless steel bailer. Soil samples will be collected at 5 ft intervals using a 3 in split-spoon sampler. The groundwater samples will be analyzed using the field GC screening method. Groundwater quality samples will be analyzed for VOCs using the GC screening method described in the approved Quality Assurance Project Plan (QAPP). Following completion, the borings will be backfilled using chipped bentonite.

At three of the soil boring locations, if completed, temporary piezometers will be installed at the water table to determine groundwater flow directions in the vicinity of the area where the silty sand does not exist. The temporary piezometers will consist of a 1 in. I.D. 5 ft Sch. 40 No. 10 slot (0.010 in) factory-cut PVC screen with 1 in. I.D. Sch. 40 PVC risers. The boring will be allowed to collapse around the piezometer and a bentonite surface seal will be installed. The piezometers will not be developed. The top of the piezometers will be surveyed to a datum. After allowing recovery to static conditions, water levels within the piezometers will be measured to determine the groundwater flow direction. Abandonment will consist of pulling the temporary piezometer, prior to demobilization from the site.

A water table monitoring well may be installed at one location if a VOC source area is found. If installed, the well will consist of a 10 ft stainless steel No. 10 slot (0.010 in) screen intersecting the water table and 2 in Sch 40 PVC risers. The well may be either a flush-mount or a stick-up completion, depending on the area installed.

Proposed groundwater quality borings will be drilled using the dual tube reverse circulation air rotary drilling method. The method is described in the Phase I FSP. Groundwater quality screening will be performed at 10-ft intervals to the top of clay. When the top of the clay layer is reached, a groundwater sample will be collected by pulling the drill rod back, if necessary, to collect the sample as close as possible to the top of the clay layer. In addition to the 10-ft routine sampling interval, groundwater samples will be collected at the upper interface of any significant (greater than 1 ft) clay layers encountered above the depth of the continuous clay layer (approximately 70 ft). Groundwater quality samples will be analyzed for VOCs using the GC screening method described in the approved Quality Assurance Project Plan (QAPP).

A piezometer will be installed in the groundwater quality borings in the zone of highest contamination. If no contamination is found, the piezometer will be installed in the zone

estimated to have the highest permeability. If more than one distinct zone of contamination exceeding the MCLs is detected, an additional well may be installed in a separate boring.

Permanent piezometer construction will consist of a 2 in I.D. 5 ft stainless steel No. 10 slot (0.010 in) screen with a 2 in I.D. 10 ft stainless steel riser directly above the screen. Above the stainless steel riser the well will be completed using 2 in I.D. Sch 40 PVC risers to ground surface.

Monitoring well and permanent piezometer development is described in the approved Phase 1 planning documents. Following development, all new monitoring wells and permanent piezometers will have hydraulic conductivity tests conducted. The hydraulic conductivity test is described in the approved Phase 1 planning documents.

At all new monitoring well and permanent piezometer locations, a soil sample will be collected from the screened interval and analyzed for total organic carbon (TOC) and grain size distribution. All new monitoring wells and piezometers, along with well W27, will be sampled and analyzed for TCL VOCs during the quarterly groundwater sampling conducted in association with the ISCA. New water quality borings will be gamma logged.

The activities proposed at 1102 Blackhawk Blvd. will consist of collecting a groundwater quality sample and analyzing the sample for TCL VOCs. The proposed soil boring will be advanced to approximately 2 ft below the water table using hollow stem augers. Soil samples will be collected at 5 ft intervals using a 3 in split-spoon sampler. A groundwater sample will be collected from inside the augers using a stainless steel bailer. The groundwater sample will be shipped to the laboratory under chain of custody procedures and analyzed for TCL VOCs. Following completion, the boring will be backfilled using chipped bentonite.

The ISCA evaluation will use pressure transducers and data loggers installed in select monitoring wells to record changes in water levels while the pumping rate is varied at EW04. In-Situ brand Troll data loggers, or equivalent, will be used. The data loggers will be started simultaneously and water levels will be recorded at 30 min intervals at all locations for the duration of the evaluation.

Daily barometric pressures will be obtained from the Rockford Airport for the period when the ISCA evaluation is conducted. A rain gauge will also be maintained on site to indicate rainfall amounts during the evaluation.

4.0 ADDENDUM TO THE QUALITY ASSURANCE PROJECT PLAN

The approved QAPP - Final (Warzyn, May 1994) requires revision for the Phase IV-Final Investigation. These revisions include replacing tables with phase specific information. Revisions to specific sections in the QAPP are presented in this addendum.

4.1 SECTION 1.7 PROJECT SCHEDULE

A tentative schedule of RI/FS activities (Figure 1) for the site is presented in the work plan.

4.2 SECTION 2.2.3 LABORATORY ANALYSIS

- Analysis of soil samples for grain size distribution as specified in Table 1-1:

CGC, Inc.
3011 Perry St.
Madison, Wisconsin 53713
608-288-4100

- Analysis of soil samples for TOC as specified in Table 1-1:

En Chem
744 Heartland Trail
Madison, WI 53717
608-831-4444

4.2.1 Laboratory Data and QC - Laboratory Data

- Analytical Protocol Specified - IEA, En Chem
- Review of Analytical protocol - IEA, En Chem staff
- Internal QA/QC - IEA, En Chem

4.2.2 Performance and Systems Audits

4.2.2.1 Analytical Laboratories.

- Internal audits - laboratory QAO, IEA, En Chem

4.3 TABLE REVISIONS

The following tables have been revised as indicated and are attached:

Table 1-1: Revised to include the Phase IV - Final Investigation sampling activities
Table 1-3: Revised for the Phase IV - Final Investigation Data Generating Activities

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TABLE 1-1

QAPP Addendum 3
Phase iv - Final Investigation
Sample Type and Estimated Number of Samples
Beloit Corporation RI/FS

Sample ⁽¹⁾ Matrix	Lab ⁽²⁾	No. of Samples	Field Duplicate	Field ⁽³⁾ Blanks	MS/MSD ⁽⁴⁾	Total No. Samples	Test ⁽⁵⁾ Parameters	Field Parameters
Groundwater Screen ⁽⁶⁾	Field	21±	2	1/day	-	25±	Field GC Volatiles	Field GC
Groundwater ⁽⁷⁾	IEA	4 to 5	1	1	1	4 to 5	TCL Volatiles	-
Grain size	CGC	2 to 3	-	-	-	2 to 3	Grain size analysis	-
TOC	En Chem	2 to 3	-	-	-	2 to 3	Total organic carbon	-

Footnotes:

- (1) Samples will be considered low concentration and will be packaged and shipped accordingly.
- (2) En Chem CGC, Inc. IEA
744 Heartland Trail 3011 Perry St 3000 Weston Parkway
Madison, Wisconsin 53717 Madison, Wisconsin 53713 Cary, NC 27513
- (3) A trip blank for VOC analysis will be included with each cooler shipped for aqueous groundwater samples. Trip blanks are not included in the total number of samples.
- (4) EXTRA VOLUME REQUIREMENT: Extra volume is required for the aqueous MS/MSD quality control requirement (triple volume for VOCs). MS/MSD samples are included in the total number of samples.
- (5) Refer to Tables 3-1 and 3-4 for the TCL organics required detection limits.
- (6) Actual number of samples dependent on groundwater quality boring depths.
- (7) Actual number of samples dependent on number of new wells installed.

TABLE 1-3

QAPP Addendum 3
Phase IV - Final Investigation
Summary of Data Generating Activities and Associated Quality Objectives
Beloit Corporation RI/FS

Activity	Description	Intended Data Usages	Parameters	Data Quality Objective	Anticipated No. of Investigative Samples
Shallow Borings	Drill up to 9 shallow borings on the Soterion facility and 1 shallow boring at 1102 Blackhawk Blvd. and collect water quality samples to evaluate VOC sources. Install up to three temporary piezometers to measure groundwater levels.	Screen groundwater quality for VOCs to identify a source of VOCs.	Field GC VOC (Water) TOC Grain Size	Level II Data	Up to 9
Deep Soil Borings	Drill up to 2 deep borings. Collect and analyze groundwater at 10-ft intervals for VOCs. Analyze soil from screened interval for TOC and grain size distribution. See Work Plan, Section 2 for selection criteria.	Soil borings will be used to characterize site geology, and screen groundwater for VOCs with changes in depth, and to select well location.	Field GC VOC (Water) TOC Grain Size	Level II Data Level III Data Level III Data	12± Up to 2 Up to 2
Groundwater Sampling ⁽¹⁾	Sampling of new monitoring wells and W27 for TCL volatiles, concurrent with quarterly sampling of Interim Source Control Wells.	Characterize and evaluate the extent of VOCs in groundwater.	TCL Volatiles	Level IV Data	Up to 3, depending on number of new wells installed.

Footnote:

(1) The number of groundwater samples collected is contingent upon the number of wells installed in the groundwater investigation.



Figure 1

**Anticipated Remedial Investigation Project Schedule
Phase IV - Final Investigation
Beloit Corporation Blackhawk Facility
Remedial Investigatoin/Feasibility Study**

TASK DESCRIPTION	1997					1998	
	8	9	10	11	12	1	2
TASK 1							
Work Plan	■						
Agency Review	■	■	■				
TASK 2							
Investigation							
A. Source Investigation (Soterion) (1)				■	■		
B. Geologic Investigation (Beloit Corp.) (1)				■	■		
C. Staff Gauge Installation					■		
D. Elevation/Location Survey					■		
E. Water Levels					■		
F. Hydraulic Conductivity Testing					■		
G. Groundwater Sampling/Analysis - Round 4 (2)					■		
H. ISCA Evaluation					■		
I. Private Well Survey					■		
J. Site Investigation Analysis					■	■	■

Footnotes:

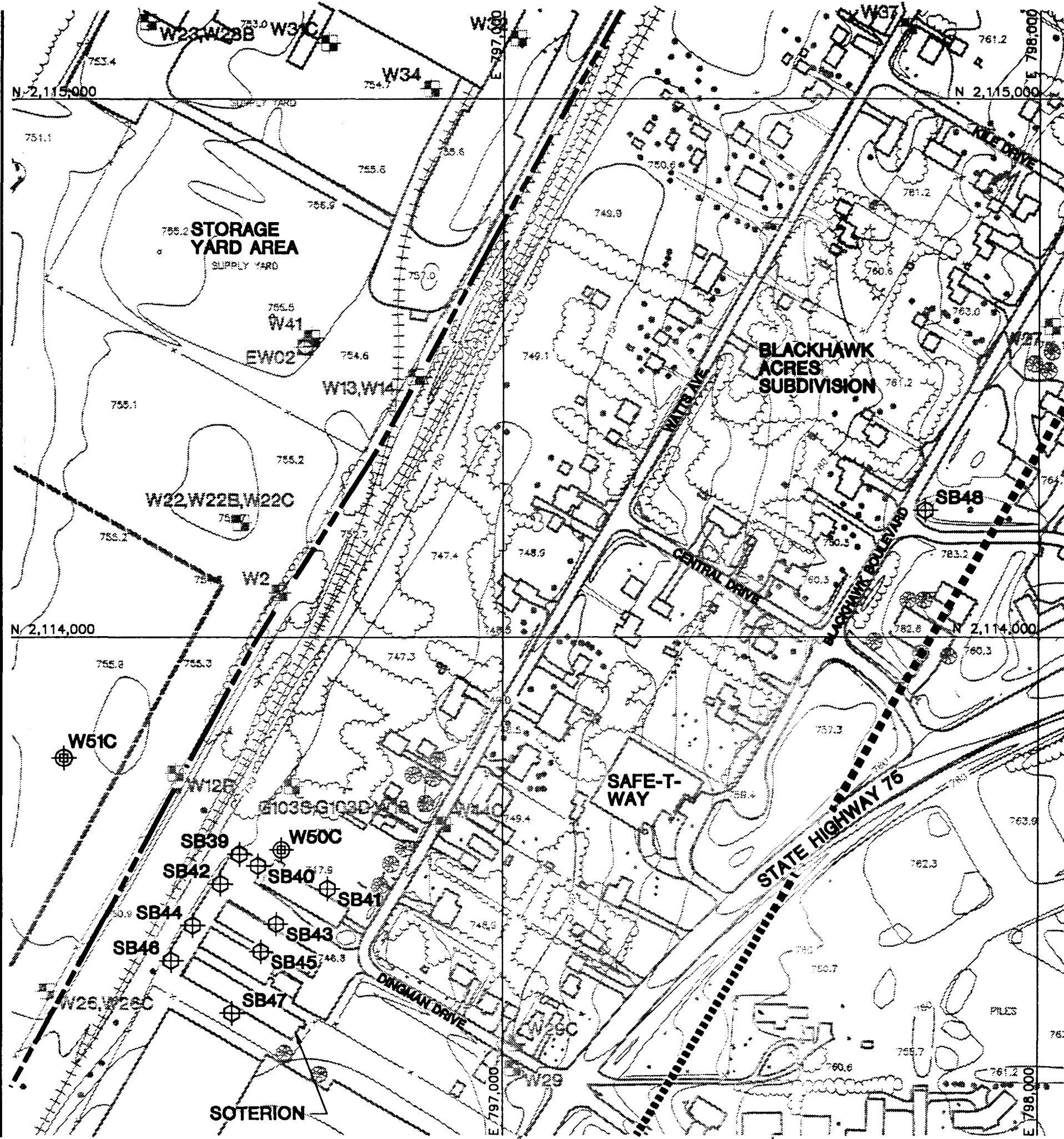
(1) Field GC Screening

(2) Analytical turnaround time is estimated to be 35 working days.

RJR/vlr/KJQ

J:\1242107708\figure1.m.xls





LEGEND

734.8
750

SPOT ELEVATION

GROUND CONTOUR

TREES AND SHRUBS

FENCE LINE

RAILROAD TRACKS

BUILDING

W20R, W20B MONITORING WELL LOCATION AND NUMBER

W## = SHALLOW WELL
W##B = INTERMEDIATE WELL
W##C = DEEP WELL
R = REPLACED WELL
G### = GOVERNMENT WELL
S = SHALLOW
D = DEEP

EW02 EXTRACTION WELL LOCATION AND NUMBER

APPROXIMATE RI/FS BOUNDARY

APPROXIMATE LIMITS OF FIBROUS SLUDGE SPREADING AREA

APPROXIMATE BELOIT CORPORATION PROPERTY LINE

SB47 PROPOSED SHALLOW BORING LOCATION AND NUMBER

W51C PROPOSED DEEP WATER QUALITY BORING LOCATION AND NUMBER

- NOTES**
1. BASE MAP DEVELOPED FROM AN AERIAL SURVEY PERFORMED BY KBM, INC., GRAND FORKS, NORTH DAKOTA. DATE OF PHOTOGRAPHY: NOVEMBER 1990.
 2. ELEVATIONS ARE BASED ON U.S.G.S. DATUM (MEAN SEA LEVEL(MSL)).
 3. GRID BASED ON ILLINOIS STATE PLANE COORDINATE SYSTEM.



Developed By RJR Drawn By DLF, LCL

Approved By *[Signature]* 9/22/97

Reference 10024910-017

Revisions

PROPOSED SAMPLING LOCATIONS

REMEDIAL INVESTIGATION / FEASIBILITY STUDY
PHASE IV - FINAL INVESTIGATION
BELOIT CORPORATION BLACKHAWK FACILITY
SECTIONS 12 AND 13, T46N, R1E
TOWN OF ROCKTON, WINNEBAGO COUNTY, WISCONSIN

Drawing Number
1242077
08090160 B2

MONTGOMERY WATSON